

Listing of the Claims:

This listing replaces all prior versions and listings of the claims in the application.

Claims 1-13 (canceled).

Claim 14 (currently amended): ~~The LCD of claim 4 wherein:~~

A liquid crystal display (LCD), comprising:

a liquid crystal cell;

a tunable mirror, optically aligned with the liquid crystal cell, having controllable reflective and transmissive modes, such that in the reflective mode the tunable mirror primarily reflects light received from the liquid crystal cell back through the cell, and in the transmissive mode the mirror primarily transmits light towards the liquid crystal cell;

a backlight on a side of the tunable mirror opposite the liquid crystal cell, the backlight being controllably switchable between emissive and non-emissive states of operation, for providing backlighting the LCD in the emissive state of operation; and wherein

said tunable mirror is further operable at at least one intermediate mode in which it partially reflects light received from the liquid crystal cell back through the cell, and partially transmits light received from the backlight towards the liquid crystal cell; and

said backlight is further operable at at least one intermediate state of operation in which it partially illuminates the LCD.

Claims 15-18 and 20-22 (canceled).

Claim 23 (currently amended): ~~The LCD of claim 22,~~

A liquid crystal display (LCD), comprising:

a liquid crystal cell;

a tunable mirror, optically aligned with the liquid crystal cell, having controllable reflective and transmissive modes, such that in the reflective mode the tunable mirror primarily reflects light received from the liquid crystal cell back through the cell, and in the transmissive mode the mirror primarily transmits light towards the liquid crystal cell;

a backlight on a side of the tunable mirror opposite the liquid crystal cell, the backlight being controllably switchable between emissive and non-emissive states of operation, for providing backlighting the LCD in the emissive state of operation;

wherein the tunable mirror comprises:

a tunable retarder, being controllably switchable between first and second states of operation, the optical phase delay of the two states differing by $\lambda/2$;
and

a cholesteric reflector optically aligned with the retarder on a side opposite the liquid crystal cell, for reflecting light received from the retarder in the first state, and for transmitting light through the retarder in the second state such that the tunable mirror operates in the reflective mode when the retarder is in the first state, and in the transmissive mode when the retarder is in the second state; and

wherein the tunable retarder is a negative quarter-wave to positive quarter-wave ($\pm\lambda/4$) retarder, controllably switchable between $-\lambda/4$ and $+\lambda/4$ states of operation,

whereby in the $+\lambda/4$ state, said retarder converts linearly polarized light of a second linear direction to circularly polarized light of a second rotational direction, and converts circularly polarized light of the second rotational direction to linearly polarized light of the second linear direction and, in the $-\lambda/4$ state, said retarder converts circularly polarized light of a first rotational direction to linearly polarized light of the second linear direction; and

whereby said cholesteric reflector reflects circularly polarized light of the second rotational direction and transmits a component of randomly polarized light having a circular polarization of the first rotational direction, such that the tunable mirror operates in the reflective mode when the $\pm\lambda/4$ retarder is in the $+\lambda/4$ state, and in the transmissive mode when the $\pm\lambda/4$ retarder is in the $-\lambda/4$ state.

Claim 24 (original): The LCD of claim 23, wherein the $\pm\lambda/4$ retarder comprises a quarter-wave ($\lambda/4$) retarder optically aligned with a zero to half-wave ($0-\lambda/2$) retarder.

Claim 25 (original): The LCD of claim 23, wherein the cholesteric reflector is a diffuse reflecting cholesteric liquid crystal polymer film.

Claim 26 (original): The LCD of claim 23, wherein the $\pm\lambda/4$ retarder is a ferroelectric liquid crystal retarder.

Claims 27-29 (canceled).

Claim 30 (original): A tunable mirror comprising:

a negative quarter-wave to positive quarter-wave ($\pm \lambda/4$) retarder, being controllably switchable between $-\lambda/4$ and $+\lambda/4$ states of operation,

whereby in the $+\lambda/4$ state, said retarder circularly polarizes linearly polarized light of a first linear direction to circularly polarized light of a first rotational direction, and linearly polarizes circularly polarized light of the first rotational direction to linearly polarized light of the first linear direction, and, in the $-\lambda/4$ state, said retarder linearly polarizes circularly polarized light of a second rotational direction to linearly polarized light of the first linear direction; and

a cholesteric reflector optically aligned with the $\pm \lambda/4$ retarder, for reflecting circularly polarized light received from the $\pm \lambda/4$ retarder having a polarization of the first rotational direction, back through the $\pm \lambda/4$ retarder, and transmitting circularly polarized light of the second rotational direction towards the $\pm \lambda/4$ retarder,

such that the tunable mirror reflects linearly polarized light of the first linear direction, received through the $\pm \lambda/4$ retarder from a side opposite the cholesteric reflector when the $\pm \lambda/4$ retarder is in the $+\lambda/4$ state, and transmits circularly polarized light of the second rotational direction received through the cholesteric reflector, on a side opposite the $\pm \lambda/4$ retarder when the $\pm \lambda/4$ retarder is in the $-\lambda/4$ state.

Claim 31 (original): The tunable mirror of claim 30, wherein the cholesteric reflector is a diffuse reflecting cholesteric liquid crystal film.

Claim 32 (original): The tunable mirror of claim 31, wherein the $\pm \lambda/4$ retarder comprises a $0-\lambda/2$ retarder and a $\lambda/4$ retarder.

Claims 33-38 (canceled).

Claim 39 (original): A method of operating a liquid crystal display (LCD), comprising:

primarily reflecting light entering a first side of a liquid crystal cell and exiting a second side of the liquid crystal cell back through the liquid crystal cell when the amount of light entering from the first side of the liquid crystal cell is above a viewability threshold;

generating and primarily transmitting a backlight emission from the second side of the liquid crystal cell through the liquid crystal cell when approximately no light enters the first side of the liquid crystal cell; and

partially reflecting light entering a first side of a liquid crystal cell and exiting a second side of the liquid crystal cell back through the liquid crystal cell, and generating and partially transmitting a backlight emission from the second side of the liquid crystal cell through the liquid crystal cell when light entering from the first side of the liquid crystal cell falls below said viewability threshold, said backlight emission being generated in an amount sufficient to supplement the reflected light such that it reaches said viewability threshold.

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Claims 40-69 (canceled).